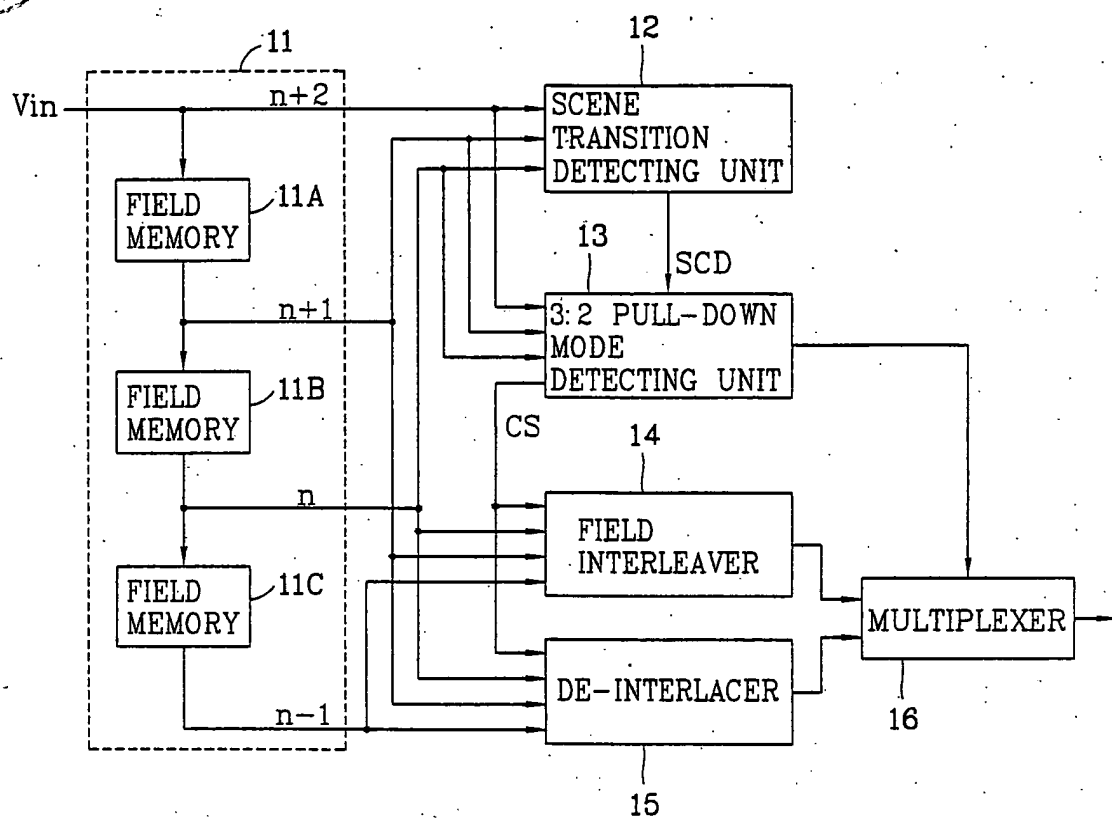


[illegible]

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FIG. 2

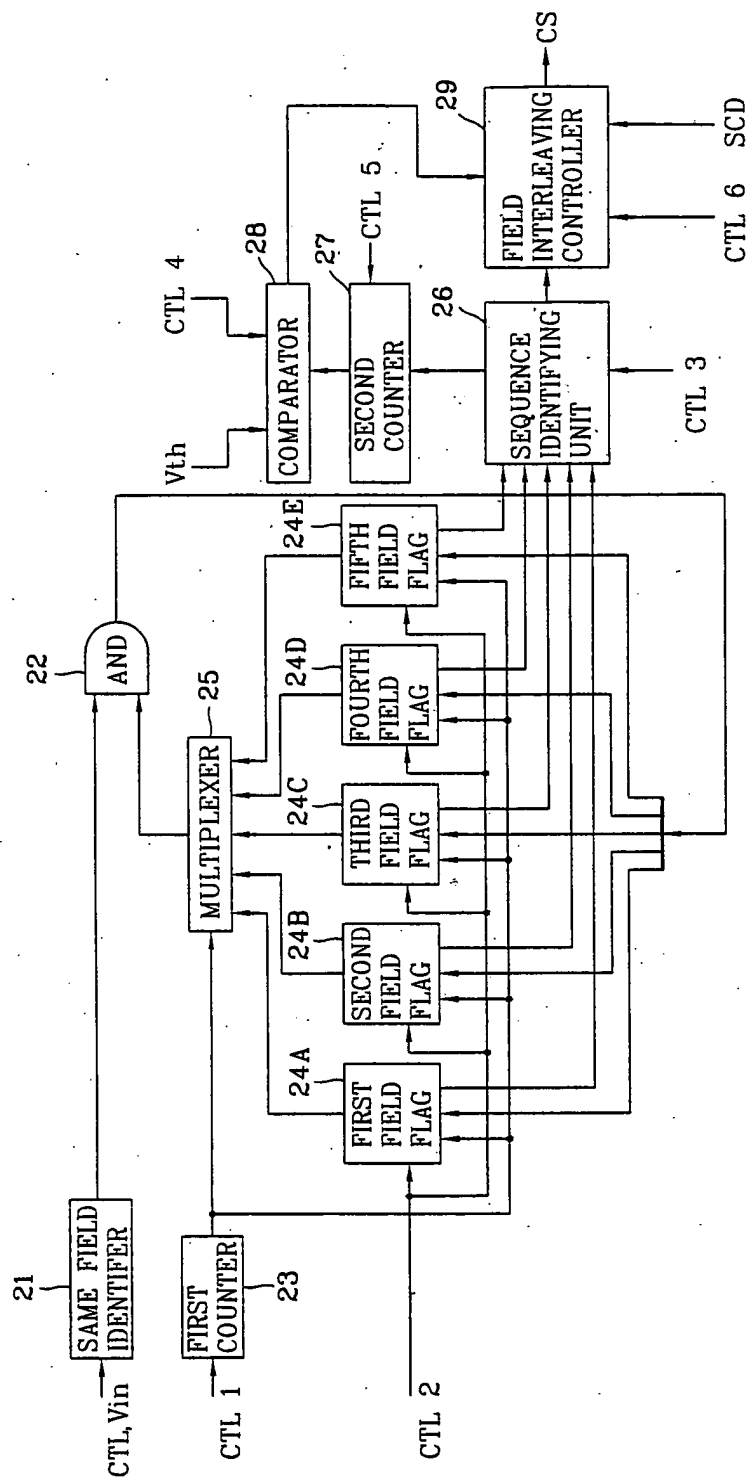
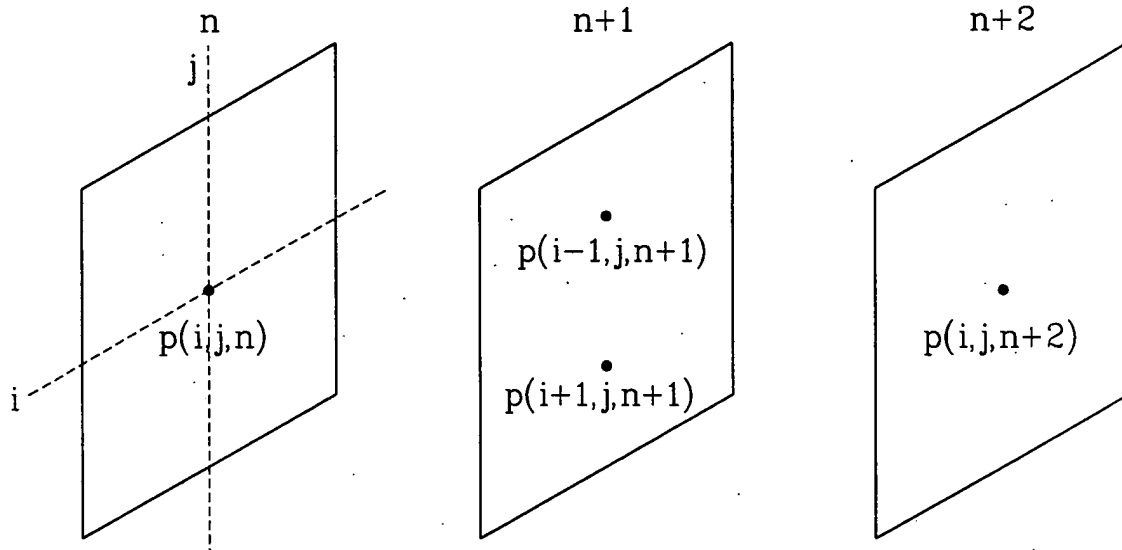




FIG. 3



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AL
FO

[illegible]

```

FOR(i=1; i<Vertical_Size; i++){
  FOR(j=0; j<Horizontal_Size; j++){
    half_interval= |p(i-1,j,n+1)-p(i+1,j,n+1)|/2
    mean=(p(i-1,j,n+1)+p(i+1,j,n+1))/2

    bd_(n+2&n)= |p(i,j,n+2)-p(i,j,n)|
    IF( |p(i,j,n)-mean|≤half_interval) THEN
      bd_(n+1&n)=0
    ELSE
      bd_(n+1&n)= |p(i,j,n)-mean|-half_interval
    END IF
    final_bd_(n+1&n)=min{bd_(n+2&n),bd_(n+1&n)}
    sum_(n+1&n)=sum_(n+1&n)-motion_(n+1&n)[0]
    FOR(k=0; k<6; k++)motion_(n+1&n)[k]=motion_(n+1&n)[k+1]
    IF(final_bd_(n+1&n)>THRESHOLDmotion) THEN
      motion_(n+1&n)[6]=1
    ELSE
      motion_(n+1&n)[6]=0
    END IF
    sum_(n+1&n)=sum_(n+1&n)+motion_(n+1&n)[6]
    IF(sum_(n+1&n)>3) THEN
      total_motion_(n+1&n)=total_motion_(n+1&n)+1
    END IF
    IF( |p(i,j,n+2)-mean|≤half_interval) THEN
      bd_(n+1&n+2)=0
    ELSE
      bd_(n+1&n+2)= |p(i,j,n+2)-mean|-half_interval
    END IF
    final_bd_(n+1&n+2)=min{bd_(n+2&n),bd_(n+1&n+2)}
    sum_(n+1&n+2)=sum_(n+1&n+2)-motion_(n+1&n+2)[0]
    FOR(k=0; k<6; k++) motion_(n+1&n+2)[k]=motion_(n+1&n+2)[k+1]
    IF(final_bd_(n+1&n+2)>THRESHOLDmotion) THEN
      motion_(n+1&n+2)[6]=1
    ELSE
      motion_(n+1&n+2)[6]=0
    END IF
    sum_(n+1&n+2)=sum_(n+1&n+2)+motion_(n+1&n+2)[6]
    IF(sum_(n+1&n+2)>3) THEN
      total_motion_(n+1&n+2)=total_motion_(n+1&n+2)+1
    END IF
  }
}

```

| Year | 1900 | 1901 | 1902 | 1903 | 1904 | 1905 | 1906 | 1907 | 1908 | 1909 | 1910 | 1911 | 1912 | 1913 | 1914 | 1915 | 1916 | 1917 | 1918 | 1919 | 1920 | 1921 | 1922 | 1923 | 1924 | 1925 | 1926 | 1927 | 1928 | 1929 | 1930 | 1931 | 1932 | 1933 | 1934 | 1935 | 1936 | 1937 | 1938 | 1939 | 1940 | 1941 | 1942 | 1943 | 1944 | 1945 | 1946 | 1947 | 1948 | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 | 1961 | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 | 2041 | 2042 | 2043 | 2044 | 2045 | 2046 | 2047 | 2048 | 2049 | 2050 | 2051 | 2052 | 2053 | 2054 | 2055 | 2056 | 2057 | 2058 | 2059 | 2060 | 2061 | 2062 | 2063 | 2064 | 2065 | 2066 | 2067 | 2068 | 2069 | 2070 | 2071 | 2072 | 2073 | 2074 | 2075 | 2076 | 2077 | 2078 | 2079 | 2080 | 2081 | 2082 | 2083 | 2084 | 2085 | 2086 | 2087 | 2088 | 2089 | 2090 | 2091 | 2092 | 2093 | 2094 | 2095 | 2096 | 2097 | 2098 | 2099 | 2100 |
|------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Population | 1,000,000 | 1,050,000 | 1,100,000 | 1,150,000 | 1,200,000 | 1,250,000 | 1,300,000 | 1,350,000 | 1,400,000 | 1,450,000 | 1,500,000 | 1,550,000 | 1,600,000 | 1,650,000 | 1,700,000 | 1,750,000 | 1,800,000 | 1,850,000 | 1,900,000 | 1,950,000 | 2,000,000 | 2,050,000 | 2,100,000 | 2,150,000 | 2,200,000 | 2,250,000 | 2,300,000 | 2,350,000 | 2,400,000 | 2,450,000 | 2,500,000 | 2,550,000 | 2,600,000 | 2,650,000 | 2,700,000 | 2,750,000 | 2,800,000 | 2,850,000 | 2,900,000 | 2,950,000 | 3,000,000 | 3,050,000 | 3,100,000 | 3,150,000 | 3,200,000 | 3,250,000 | 3,300,000 | 3,350,000 | 3,400,000 | 3,450,000 | 3,500,000 | 3,550,000 | 3,600,000 | 3,650,000 | 3,700,000 | 3,750,000 | 3,800,000 | 3,850,000 | 3,900,000 | 3,950,000 | 4,000,000 | 4,050,000 | 4,100,000 | 4,150,000 | 4,200,000 | 4,250,000 | 4,300,000 | 4,350,000 | 4,400,000 | 4,450,000 | 4,500,000 | 4,550,000 | 4,600,000 | 4,650,000 | 4,700,000 | 4,750,000 | 4,800,000 | 4,850,000 | 4,900,000 | 4,950,000 | 5,000,000 | 5,050,000 | 5,100,000 | 5,150,000 | 5,200,000 | 5,250,000 | 5,300,000 | 5,350,000 | 5,400,000 | 5,450,000 | 5,500,000 | 5,550,000 | 5,600,000 | 5,650,000 | 5,700,000 | 5,750,000 | 5,800,000 | 5,850,000 | 5,900,000 | 5,950,000 | 6,000,000 | 6,050,000 | 6,100,000 | 6,150,000 | 6,200,000 | 6,250,000 | 6,300,000 | 6,350,000 | 6,400,000 | 6,450,000 | 6,500,000 | 6,550,000 | 6,600,000 | 6,650,000 | 6,700,000 | 6,750,000 | 6,800,000 | 6,850,000 | 6,900,000 | 6,950,000 | 7,000,000 | 7,050,000 | 7,100,000 | 7,150,000 | 7,200,000 | 7,250,000 | 7,300,000 | 7,350,000 | 7,400,000 | 7,450,000 | 7,500,000 | 7,550,000 | 7,600,000 | 7,650,000 | 7,700,000 | 7,750,000 | 7,80 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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ELSE
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```
IF (total_motion_(n+1&n) < THRESHOLDtotal_motion) THEN
    total_motion_(n+1&n) = 0
```

END IF

IF(total_motion_(n+1&n+2)<THRESHOLD_{total_motion}) THEN

total
END IF

IF(total_motion_(n+1&n)<total_motion_(n+1&n+2) THEN

"The scene was abruptly changed in the (n+2)th field."

```
ELSE IF (total_motion_(n+1)&n)>total_motion_(n+1&n+2)) THEN
```

```

if (total_motion_((n+1)&n)>total_motion_((n+1)&n+ε)) if
"The scene was abruptly changed in the (n+1)th field."

```

ELSE

"The scene change did not occurred."

END IF

END IF

FIG. 6

All variables are initialized to 0's every field.

```
FOR(i=1; i<Vertical_Size; i++){
```

```
FOR(j=0; j<Horizontal_Size; j++)
```

```
half_interval= |p(i-1,j,n+1)-p(i+1,j,n+1)| /2
```

```

nan_interval= (p(i-1,j,n+1)-p(i+1,j,n+1))/2
mean=(p(i-1,j,n+1)+p(i+1,j,n+1))/2

```

```
IF( |p(i,j,n)-mean|≤half_interval) and(|p(i,j,n+2)-mean|≤half_interval))
    THEN bd_(n+2&n)=0
```

ELSE

$$bd_{-}(n+2 \& n) = |p(i, j, n+2) - p(i, j, n)|$$

```

      bd_
END IF

```

```
sum (n+2&n)=sum (n+2&n)-motion (n+2&n)[0]
```

```
sum_ (n+2&n)=sum_ (n+2&n)-motion_ (n+2&n)[0]
FOR(k=0; k<6; k++)motion_ (n+2&n)[k]=motion_ (n+2&n)[k+1]
```

```

FOR(k=0; k<b; k++)motion_(n+2&n)[k]=motion_
IF(final_bd_(n+2&n)>THRESHOLDmotion) THEN

```

$$\text{motion_}(n+2\&n)[6]=1$$

ELSE

```

motion_(n+2&n)[6]=0

```

mot
END IF

```
sum_(n+2&n)=sun_(n+2&n)+motion_(n+2&n)[6]
```

```
sum_(n+2&n)=sum_(n+2&n)
IF(sum_(n+2&n)>3) THEN
```

```
sum_(n+2&n)>3) THEN
  total_motion_(n+2&n)=total_motion_(n+2&n)+1
```

total
END IF

3

}